

REMARKS

Claims 1-2, 4-13, and 24-31 were presented for examination in the present application. The instant amendment cancels claims 29 and 31 without prejudice. Thus, claims 1-2, 4-13, 24-28, and 31 are presented for consideration upon entry of the instant amendment, which is respectfully requested. Claims 1, 6, and 25 are independent.

Applicants acknowledge the allowance of claim 6. Accordingly, claim 6 has been amended into independent format, namely to include the elements of claims 5, 4, and 1, and is therefore believed to be in condition for issuance.

Independent claim 1, as well as dependent claims 4-5,7, and 24, were finally rejected under 35 U.S.C. §102(b) over European Publication No. EP-0548972 to Ando et al. (Ando). Dependent claims 2 and 8-10 were rejected under 35 U.S.C. §103(a) over Ando in view of European Publication No. EP-0516436 to Bartolomei et al. (Bartolomei). Independent claim 25, as well as dependent claims 26-31, were finally rejected under 35 U.S.C. §103(a) over Ando in view of Bartolomei.

Applicants respectfully traverse these rejections.

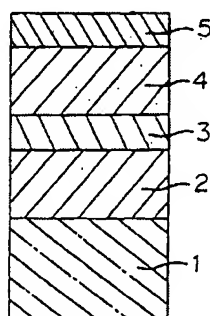
Claim 1 is directed to a process for coating a substrate with a **functional metal layer** that recites the steps of "interrupting the sputtering at least once to produce a metal oxide intermediate layer on the first sub-layer" and "continuing sputtering the layer starting material after the metal oxide intermediate layer is produced to define a second sub-layer of the functional metal layer".

Thus, the claimed process coats a substrate with a **functional metal layer** that has a first sub-layer, an intermediate layer, and a second-sublayer.

Applicants submit that Andro fails to disclose or suggest a **metal functional layer** with a **metal oxide intermediate layer** as claimed.

In contrast, Andro discloses in Figures 1 through 4 sectional diagrams of examples of a functional product. For ease of analysis, Figure 2 is reproduced below.

FIGURE 2



Andro discloses a transparent substrate 1, an oxide film 2, a thin film 3 having a function (hereinafter, called a functional film), an oxide film 4, and a chemical proof protective film 5. See col. 3, line 55 though col. 4, line 7. Thus, the only portion of Andro disclosed as being a **functional film** is the layer that is indicated by reference numeral 3. However, Andro fails to disclose or suggest that functional film 3 has an intermediate layer as claimed.

Moreover, and merely in the interest of expediting prosecution, claim 1 has been clarified to recite that "the metal oxide intermediate layer **increases the reflectance of the functional metal layer** (emphasis added)".

Presuming arguendo that oxide film 2, functional film 3, and oxide film 4 together form a **functional metal layer** as claimed (which they do not), Applicants submit Andro teaches away from using film 3 to **increase the reflectance** of the composite formed by layers 2, 3, and 4 as does the metal oxide intermediate layer of present claim 1.

More specifically, Andro discloses that it is required that the transmittance thereof is high and the reflection factor thereof is low in view of safety. See col. 1, lines 25-30.

Instead, Andro discloses oxide films 2, 4 whose major component is an oxide containing tin and silicon (col. 4, lines 1-2) that are transparent, a property that is crucial for the application intended by Ando, that is to say car windows. Car windows have to be transparent, thus it would not be very helpful to coat them with metal functional layers, since the intention of applying these is to reflect and not to transmit light.

Furthermore, Andro discloses that functional film 3 has a heat shielding function (col. 8, lines. 4-7), but is not implemented to improve the reflectance of the a composite of layers 2, 3, and 4. In fact, the functional film 3 of Ando merely adds a further function to the layer stack, that is to say the heat shielding function. However, no hint or suggestion is provided in either Ando or Bartolomei that would suggest that implementing an intermediate layer could improve the reflectance of a functional metal layer as claimed.

Thus, Applicants submit that claim 1 is not disclosed or suggested by Andro alone or in combination with Bartolomei. Claim 1, as well as claims 2, 4-13, and 24 that depend therefrom, are in condition for allowance. Reconsideration and withdrawal of the rejection to claims 1-2, 4-13, and 24 are respectfully requested.

Claim 25 is directed to a process for coating a substrate with a functional metal layer that includes the steps of "sputtering a layer starting material on a substrate in a vacuum chamber to define a first sub-layer of the functional metal layer; interrupting the sputtering of the layer starting material after forming the first sub-layer; introducing an oxygen-rich microwave plasma into the vacuum chamber so that a surface of the first sub-layer of the functional metal layer is oxidized; and continuing sputtering of the layer starting material after the metal oxide intermediate layer is produced to define a second sub-layer of the functional metal layer".

As discussed in detail above with respect to claim 1, Andro fails to disclose or suggest that functional film 3 has an intermediate layer as claimed.

Moreover, and merely in the interest of expediting prosecution, claim 25 has been amended to include elements of claim 29, which has been cancelled, and now recites that "the metal oxide intermediate layer increases the reflectance of the functional metal layer (emphasis added)".

Again, Applicants submit Andro teaches away from using film 3 to increase the reflectance of the composite formed by layers 2, 3, and 4 as does the metal oxide intermediate layer of present claim 25.

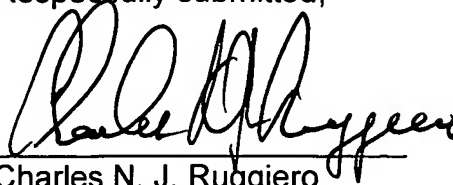
Thus, Applicants submit that claim 25 is not disclosed or suggested by Andro alone or in combination with Bartolomei. Claim 25, as well as claims 26-28 and 31 that depend therefrom, are in condition for allowance. Reconsideration and withdrawal of the rejection to claims 25-28 and 31 are respectfully requested.

In view of the above, it is respectfully submitted that the present application is in condition for allowance. Such action is solicited.

In the alternative, Applicants submit that the instant amendment places the present application in better condition for appeal. For example, the amendment to claim 1 reduces issues for appeal by eliminating the "and/or" element previously considered. The amendment to claim 6 places the claim in condition for issuance by re-writing the claim in independent form. The amendment to claim 25 incorporates elements of previously considered dependent claim 29. Accordingly, entry and consideration of the instant amendment, at least for the purposes of appeal, are respectfully requested.

If for any reason the Examiner feels that consultation with Applicants' attorney would be helpful in the advancement of the prosecution, the Examiner is invited to call the telephone number below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Charles N. J. Ruggiero", written over a horizontal line.

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